

Figure 1

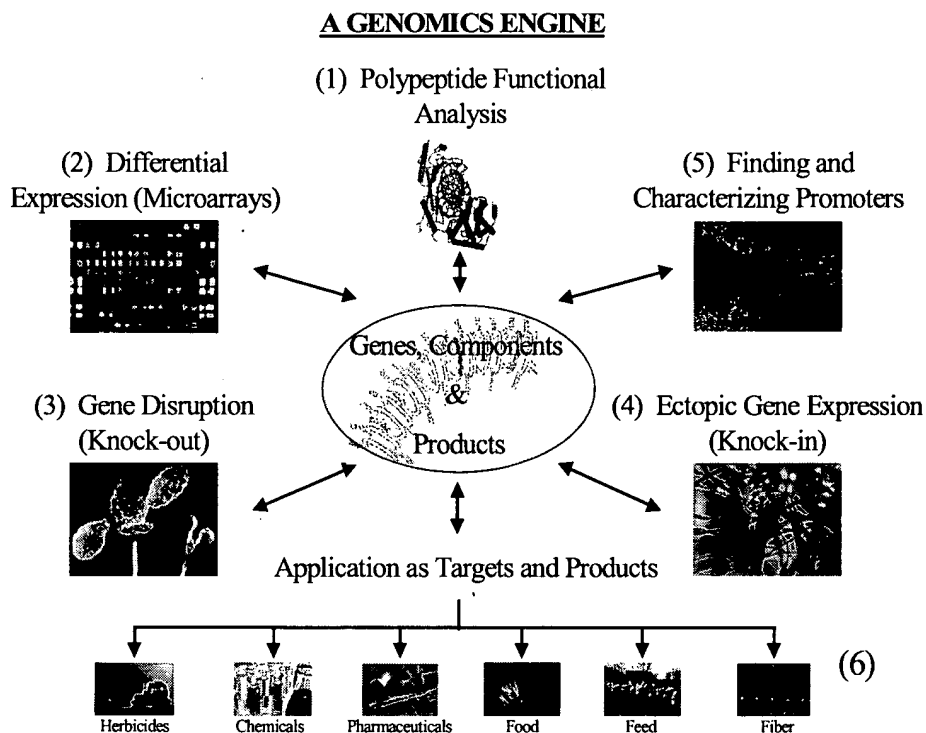


Figure 1. Gene sequences were determined and are depicted to occupy the center of the figure. Five different sorts of technologies were deployed in the Genomics engine to discover the functions of the genes. (1) Computer-based comparisons of protein structural features. (2) Studies to discover where and when each gene and groups of genes are active. (3) Discovery of the phenotypic consequences of inactivating each gene. (4) Elucidation of the phenotypic consequences of activating a gene in a new way. (5) Discovery of the sequence and activity of promoters of the genes. All this information leads to knowledge of how to use the genes, and gene components to create new products for industrial applications. (6)

Figure 2

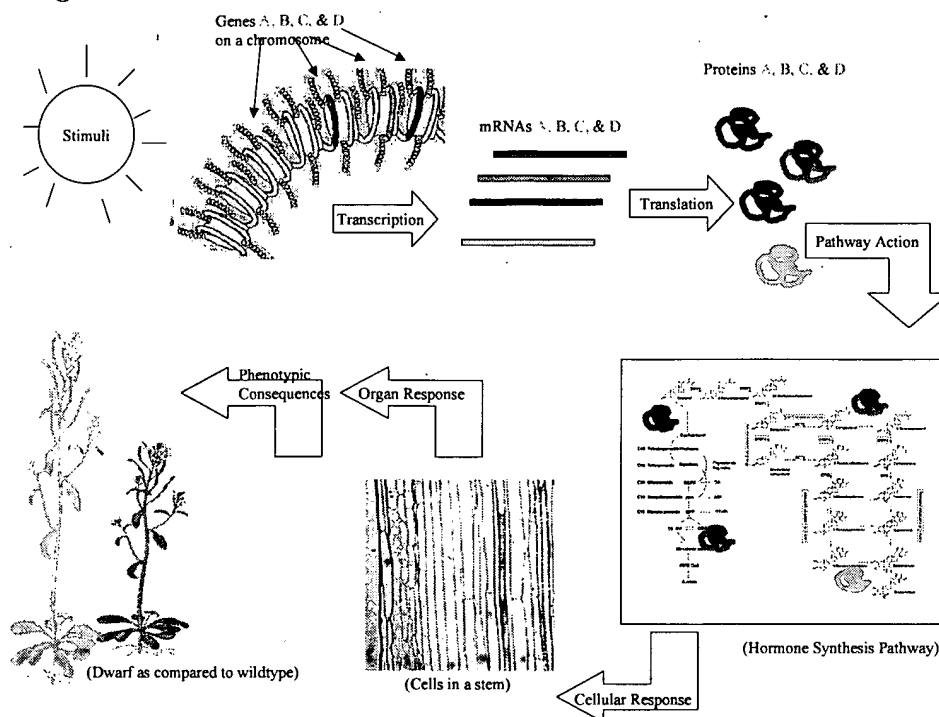


Figure 2. The figure illustrates how genes A, B, C and D are activated by internal stimuli and then their mRNA transcripts translated into proteins. These proteins are enzymes in three different but linked pathways. All three pathways are activated by the same stimuli. One of them, depicted by the green and light blue proteins determines the levels of a hormone in the shoot meristems causes cells to expand. This cell expansion leads to a longer stem and a taller plant. Genes A & C are therefore useful for controlling plant height and stem strength. The other two pathways would lead to other phenotypic characteristics.

Figure 3

Integration of Data Across Species to Link Gene Products and Phenotypes

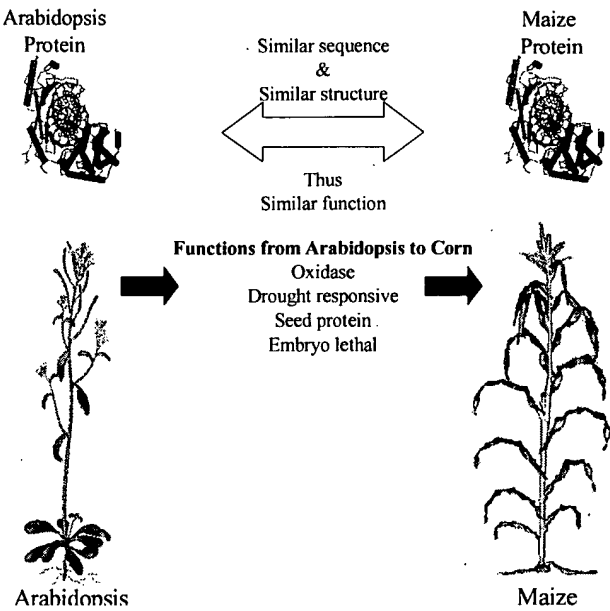


Figure 4

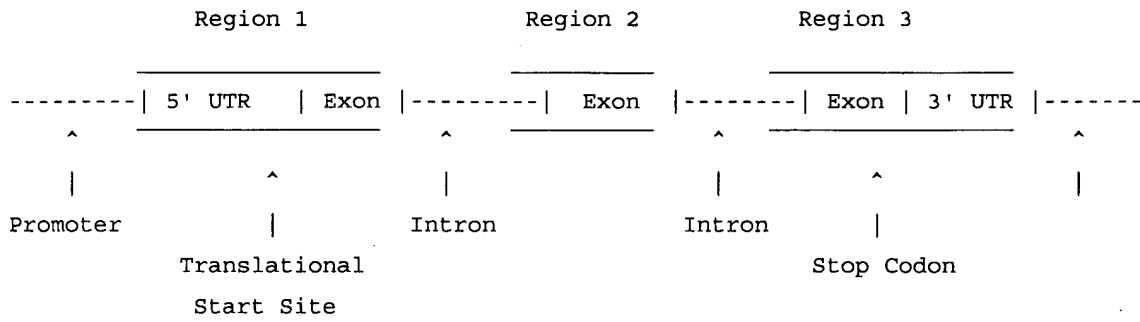


Figure 5

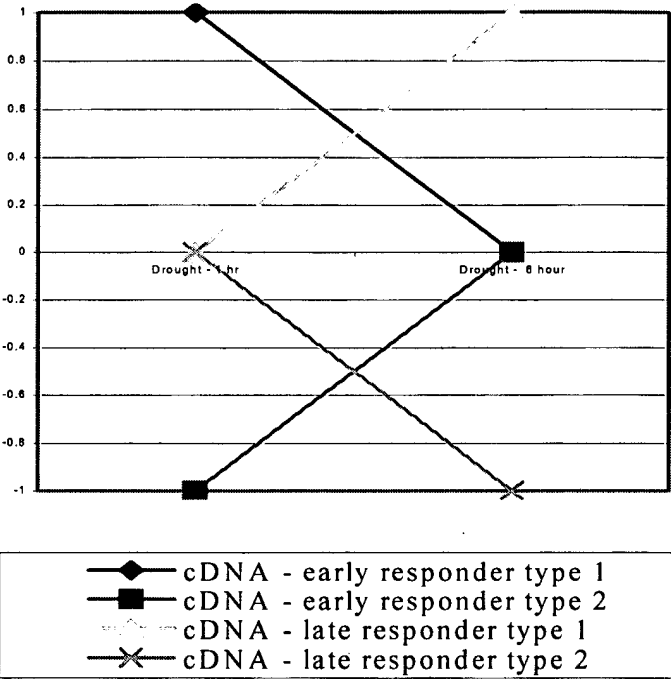


Figure 6

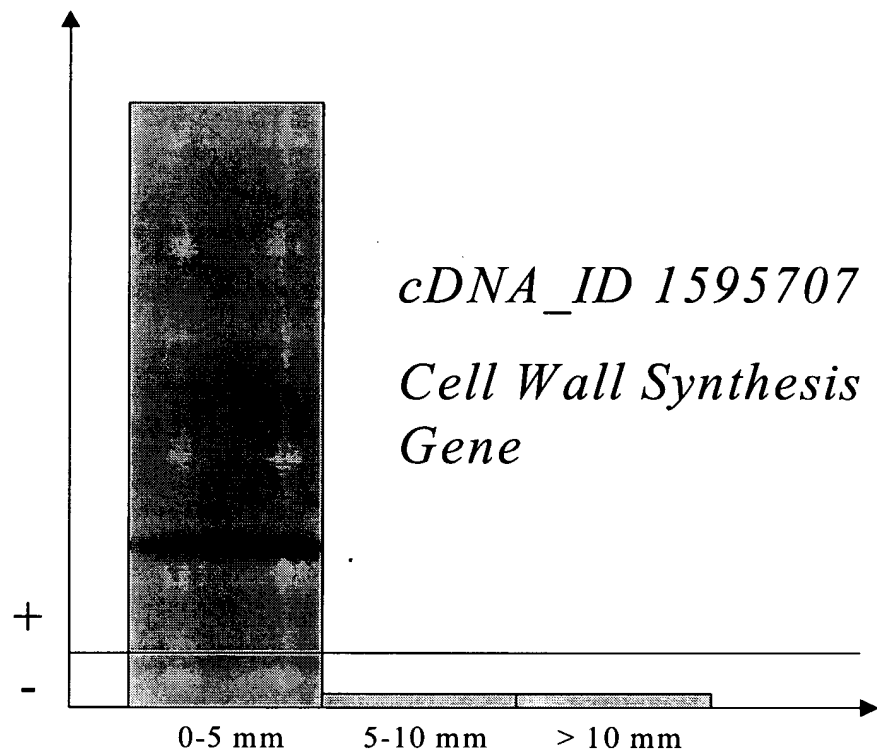
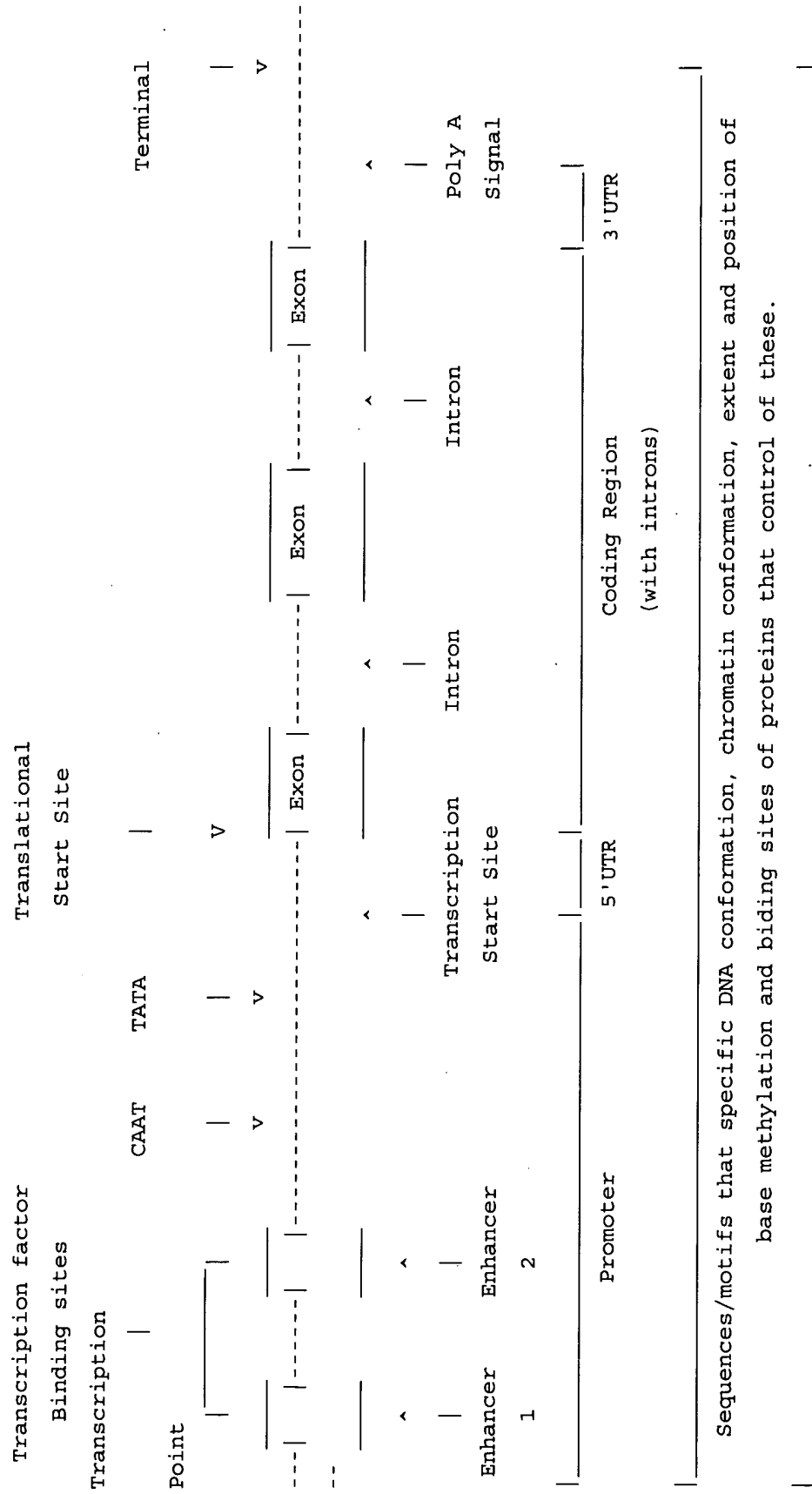


Figure 7

SCHEMATIC OF A GENE



Gene